5.3 Output-Based Environmental Regulations to Support Clean Energy Supply

Policy Description and Objective

Description

Output-based environmental regulations relate emissions to the productive output of a process. The goal of output-based environmental regulations is to encourage the use of fuel conversion efficiency and renewable energy as air pollution control measures. While output-based emission limits have been used for years in regulating some industrial processes, their use is only recently evolving for electricity and steam generation. Output-based regulations can be an important tool for promoting an array of innovative energy technologies that will help achieve national environmental and energy goals by reducing fuel use.

Most environmental regulations for power generators and boilers have historically established emission limits based on heat input or exhaust concentration: that is, they measure emissions in pounds per million British thermal units (lb/MMBtu) of heat input or in parts per million (ppm) of pollutant in the exhaust stream. These traditional input-based limits do not account for the pollution prevention benefits of process efficiency in ways that encourage the application of more efficient generation approaches. For example, a facility that installs an energy efficient technology emits less, because less fuel is burned. But with an input-based emission limit, the reduced emissions from improved energy efficiency are not counted toward compliance. By not accounting for these emission reductions, input-based emission limits can be a barrier to adopting energy efficiency improvements.

Output-based emission limits are particularly important for promoting the significant energy and environmental benefits of combined heat and power (CHP). CHP units produce both electrical and thermal output. Output-based limits can be designed to explicitly account for both types of output in the compliance computation. Traditional input-based limits, on the other hand, can present a barrier to selecting CHP technologies, because they do not account for the emission reductions achieved through increased generation efficiency.

States utilize output-based environmental regulations to encourage efficient energy generation by leveling the playing field for fuel conversion efficiency and renewable energy as air pollution control measures. Historically, environmental regulations have been input-based, which does not account for the pollution prevention benefits of process efficiency, which encourages the use of more efficient generation approaches.

To encourage more efficient energy generation, states have begun to design and implement output-based environmental regulations. An output-based emission limit is expressed as emissions per unit of useful energy output (i.e., electricity, thermal energy, or shaft power). The units of measure can vary depending on the type of energy output and the combustion source. For electricity generation, the unit of measure is mass of emissions per megawatt-hour (lb/MWh).

Output-based emission limits do not favor any particular technology and do not increase emissions. Output-based regulations simply level the playing field by establishing performance criteria and allowing energy efficiency and renewable energy to compete on an equal footing with any other method of reducing emissions (e.g., combustion controls and add-on controls).

Objective

The key objective is to encourage more efficient energy generation by designing environmental regulations that allow energy efficiency to compete as an air pollution control measure. Emission standards

that account for the emission reduction benefits of energy efficiency, and specifically the efficiency benefits of CHP, will make it more attractive for facilities to permit and install clean energy technologies.

Output-based approaches also can be designed into cap and trade programs to encourage non-emitting end-use energy efficiency and renewable energy projects.

An output-based emission regulation can reduce compliance costs because it gives the plant operator greater flexibility in reducing emissions. A facility operator can comply by installing emission control equipment, using a more energy efficient process, or using a combination of the two. Regulating the emissions produced per unit of output has value for equipment designers and operators because it gives them additional opportunities to reduce emissions through more efficient fuel combustion, more efficient cooling towers, more efficient generators, and other process improvements that can increase plant efficiency.

Example of Cost Flexibility Allowed by an Output-Based Emission Standard

Consider a planned new or repowered coal-fired utility plant with an estimated uncontrolled nitrogen oxide (NO_x) emissions rate of 0.35 lb/MMBtu heat input. To comply with an input-based emission standard of 0.13 lb/MMBtu heat input, the plant operator would have to install emission control technology to reduce NO_x emissions by more than 60%. On the other hand, if the plant were subject to an equivalent output-based emission standard of 1.3 lb/MWh, then the plant operator would have the option of considering alternative control strategies by varying both the operating efficiency of the plant and the efficiency of the emission control system (Table 5.3.1). This output-based format allows the plant operator to determine the most cost-effective way to reduce NO_x emissions and provides an incentive to reduce fuel combustion. The total annual emissions are the same in either case.

Table 5.3.1: Design Flexibility Offered by Output-Based Standards

Plant Efficiency (%)	Emission Standard (lb/MWh)	Required Control Device Efficiency (%)
34	1.3	60
40	1.3	55
44	1.3	48

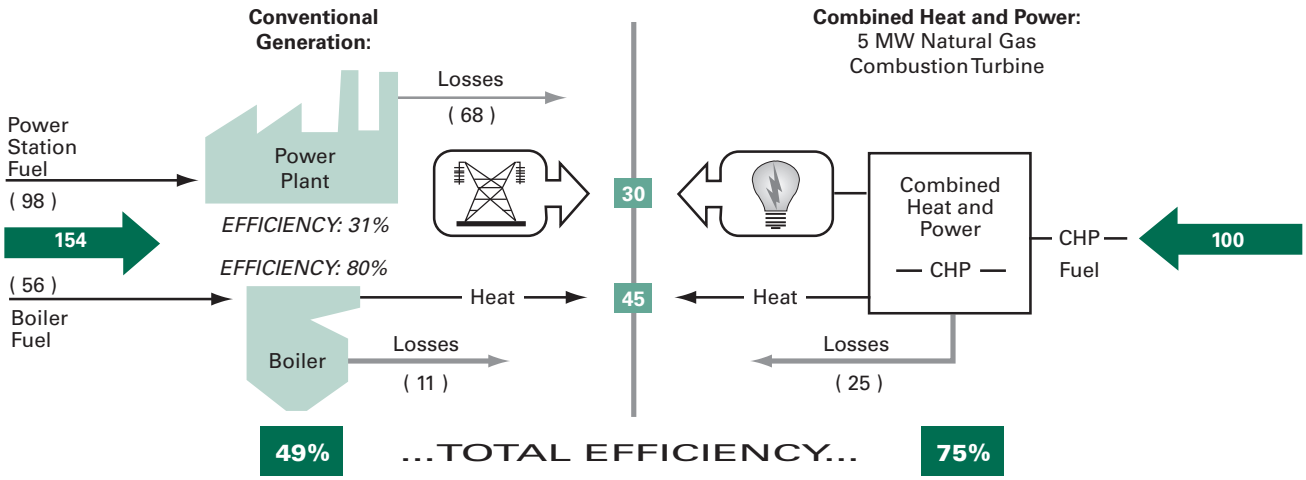
Source: EPA 2004.

Benefits

Output-based environmental regulations level the playing field and encourage pollution prevention and energy efficiency. The primary benefits of using more efficient combustion technologies and renewable energy include:

- *Multi-Pollutant Emission Reductions.* The use of efficiency as a pollution control measure results in multi-pollutant emission reductions. For example, to comply with a rule for NO_x, a source that increases fuel conversion efficiency will reduce emissions of all other pollutants, including sulfur dioxide (SO_2), particulate matter, hazardous air pollutants, as well as unregulated emissions such as carbon dioxide (CO_2).
- *Multimedia Environmental Reductions.* By encouraging reduced fuel use, output-based environmental regulations reduce air, water, and solid waste impacts from the production, processing, transportation, and combustion of fossil fuels.
- *Reduced Fossil Fuel Use.* Encouraging energy efficiency and renewable energy sources will reduce stress on today's energy systems and reduce the demand for imported fossil fuels.
- *Technology Innovation.* Encouraging more efficient energy generation can advance the use of innovative technologies, such as CHP. Figure 5.3.1 illustrates how CHP can save energy compared to the conventional practice of separate generation of heat and power. CHP offers a combined fuel conversion efficiency of 75% compared to 45% for the conventional system while providing the same thermal and electric service. As a result, the CHP system emits only 17 tons of NO_x per year while the conventional system emits 45 tons per year.

Figure 5.3.1: CHP System Efficiency



Source: EPA 2004.

- *Compliance Flexibility.* Allowing the use of energy efficiency as part of an emission control strategy provides regulated sources with an additional compliance option. Under an output-based environmental regulation, sources would have the option of varying both the efficiency of the process and the efficiency of the emission control system. This flexibility allows the plant operator to determine the most cost-effective way to reduce emissions, while providing an incentive to burn less fuel. Input- or concentration-based regulations do not provide this option.

States That Have Developed Output-Based Regulations

Several states have been at the forefront of adopting output-based environmental regulations in general and, in particular, developing rules that account for the efficiency benefits of CHP. Programs adopted by these states include:

- Conventional emission limits using an output format.
- Special regulations for small distributed generators (DG) that are output-based.
- Output-based allowance allocation methods in a cap and trade program.
- Output-based allowance allocation set-asides for energy efficiency and renewable energy.
- Multi-pollutant emission regulations using an output-based format.

A summary of state output-based environmental regulations programs is presented in Table 5.3.2.

Designing an Effective Output-Based Environmental Regulations Program

Key elements that are involved in designing an effective output-based environmental regulations program include participants, applicable programs, interaction with other state and federal policies, and barriers to developing output-based environmental regulations.

The most common use of output-based regulations is for emission limits. To design an output-based limit, states make several decisions about the format of the rule. Making these decisions involves tradeoffs between the degree to which the rule accounts for the benefits of energy efficiency, the complexity of the rule, and the ease of measuring compliance.

Table 5.3.2: State Output-Based Regulations

State	Rule Type
California	Small DG Rule[a]
Connecticut	Allowance Allocation/trading Small DG Rule[a]
Delaware	Allowance Allocation/trading Small DG Rule[a]
Indiana	Allowance Allocation/set-asides
Maine	Small DG Rule
Maryland	Allowance Allocation/set-asides
Massachusetts	Allowance Allocation/trading[a] Small DG Rule Multi-Pollutant Regulation Allowance Allocation/set-asides
New Hampshire	Multi-Pollutant Regulation
New Jersey	Allowance Allocation/trading Allowance Allocation/set-asides
New York	Small DG Rule Allowance Allocation/set-asides
Ohio	Allowance Allocation/set-asides
Texas	Conventional NO_x Limits Small DG Rule[1]

[a] Includes recognition of CHP through inclusion of a thermal credit.

Source: Compiled by EPA based on multiple sources.

The general steps for designing an output-based emission standard are:

- *Develop the Output-Based Emission Limit.* The method used to develop this limit depends on whether emissions and energy output data that were measured simultaneously are available. If not, states can develop output-based emission limits by converting input-based emissions data or existing emission limits to an output-based equivalent using unit conversions and a benchmark energy efficiency.
- *Specify a Gross or Net Energy Output Format.* Net energy output will more comprehensively account for energy efficiency, but can increase the complexity of compliance monitoring requirements.
- *Specify Compliance Measurement Methods.* Output-based rules require methods for monitoring electrical, thermal, and mechanical outputs. These outputs are already monitored at most facilities for commercial purposes, and the methods are readily available.
- *Specify How to Calculate Emission Rates for CHP Units.* To account for the pollution prevention benefits of CHP, output-based regulations must specify a method to account for both the thermal and electric output of the CHP process (in this document, we refer to this as "recognizing" CHP). States have used several approaches to recognize CHP. These approaches are described in more detail in The U.S. Environmental Protection Agency's (EPA's) *Output-Based Regulations: A Handbook for Air Regulators* (EPA 2004). Each approach has policy and implementation trade-offs, but they all provide a more appropriate framework for regulating CHP emissions than do conventional emission limit formats.

Participants

- *State Environmental Agencies.* The state environmental agency is responsible for formulating and administering state air regulations.
- *State Energy Offices and Public Utility Commissions (PUCs).* These organizations can play an active role in encouraging the use of output-based environmental regulations. Both types of organizations typically have an interest in promoting efficient and clean energy generation and are looking for policies that can promote such technologies. They often have a good understanding of the value of efficiency in the generating sector and can assist the process by analyzing potential energy and economic benefits that the state could achieve by using output-based environmental regulations.
- *State Economic Development Agencies.* These agencies may also have an interest in output-based environmental regulations due to their potential to encourage lower cost and more reliable sources of energy for new industry. Output-based environmental regulations might also simplify environmental permitting for clean, efficient facilities, providing an advantage for economic development in the state.

- *Regulated and Nonregulated Stakeholders.* Stakeholders often play a role in developing and promoting output-based environmental regulations. Energy users, CHP and DG equipment manufacturers, project developers, and trade associations representing these interests may provide relevant information and comments throughout the regulatory development and implementation process.
- *State Legislators.* In some cases, state legislators may play a role in promoting output-based environmental regulations. Legislators can be proponents of efficiency and clean technology and can provide support for development of output-based environmental regulations as a means of meeting state efficiency and clean air goals.

Applicable Programs

Output-based concepts can be applied to a variety of air regulatory programs, including:

- *Conventional Emission Limits, Such as Reasonably Available Control Technology (RACT), National Emission Standards for Hazardous Air Pollutants (NESHAP), and New Source Performance Standards (NSPS).* The Ozone Transport Commission (OTC) has used an output-based format for "beyond-RACT" NO_x limits. EPA has used an output-based approach with recognition of CHP for the NSPS for NO_x from utility boilers, the NSPS for mercury from coal-fired utility boilers, and the NESHAP for combustion turbines.
- *Emission Limits for Small DG and CHP.* Most states that have recently promulgated emission limits for DG are using output-based environmental regulations. These states include California, Texas, Connecticut, Massachusetts, and Maine. Delaware, Rhode Island, and New York are currently developing output-based environmental regulations. All of these states, except Massachusetts and New York, recognize CHP by including a thermal credit in their regulations. Massachusetts and New York currently are considering how to recognize CHP. These are standalone efforts in response to developing markets for DG.
- *Allowance Allocation in Emission Trading Programs.* Allowance allocation is an important component in emission cap and trade programs for electric utilities. Allowance allocations are most commonly based on either heat input or energy output. Allocation based on heat input gives more allowances to less efficient units, and allocation based on energy output gives more allowances to more efficient units. An updating allocation system (where allowances are reallocated in the future) using an output basis provides an ongoing incentive for improving energy efficiency. Connecticut and New Jersey use output-based allocation in their NO_x trading rules. Massachusetts uses an output-based allocation that includes the thermal energy from CHP.
- *Allowance Allocation Set-Asides for Energy Efficiency and Renewable Energy.* In addition to allocating allowances to regulated sources, a cap and trade program can "set aside" a portion of its NO_x allowances for allocation to energy efficiency, renewable energy, and CHP projects that are not regulated under the cap and trade program. These unregulated units can sell the allowances to regulated units to generate additional revenue. States with set-aside programs include Indiana, Maryland, Massachusetts, New York, New Jersey, and Ohio. Connecticut is currently developing a set-aside rule.
- *Multi-Pollutant Programs.* Several states have adopted multi-pollutant emission limits for power generators. Some include emission trading, while others are similar to conventional emission rate limits. Massachusetts and New Hampshire have established such programs using output-based environmental regulations, although neither currently includes CHP.

Interaction with Federal Policies

Several federal programs have adopted output-based regulations with recognition of CHP (see *Examples of Legislation and Program Proposals*, in *Information Resources* on page 5-41). These programs include:

- NSPS for NO_x from electric utility boilers and the proposed combustion turbines both apply output-based limits with recognition of CHP through the treatment of a thermal credit. The boiler NSPS

was one of the first such rules and helped set an example for other regulations. The most recently proposed NSPS revisions expand the use of output-based environmental regulations to other pollutants and improve the treatment of thermal output from CHP.

- Emission limits in state implementation plans (SIPs) can be in expressed in any format as long as the plan demonstrates compliance with federal air quality standards.
- The new EPA cap and trade programs (Clean Air Interstate Rule for ozone and fine particulate matter and the Clean Air Mercury Rule) allow states to determine the method for allocating allowances. The EPA model rules include examples of output-based allocation, including methods to include CHP units. These model rules can be adopted by states "as is," which would be a benefit to CHP.

Interaction with State Policies

The use of output-based environmental regulations to encourage CHP can be coordinated with other state programs, including:

- State emission disclosure programs for electricity that typically use an output-based format (lb/MWh). This is an indication of the usefulness of the output-based approach to accurately relate emissions to useful output.
- Other state policies that are important in encouraging efficiency and CHP development include grid interconnection standards, electricity and gas ratemaking, and financial incentives for CHP developments.

Barriers to Developing Output-Based Environmental Regulations

For power and steam applications, an output-based regulation is a change from historical regulatory practice and can create uncertainties for implementation. At this time, however, the use of output-based environmental regulations is growing, and there has been sufficient experience with state and EPA rulemakings to provide successful examples for rule development and implementation.

One issue that has been raised in past rulemakings is the lack of simultaneously measured energy output and emission data upon which to base the emission limit. Where these data were not available, EPA and states developed output-based environmental regulations by converting input-based data or emission limits to an output-based format using units of measure conversions and a benchmark energy efficiency. The selection of a benchmark energy efficiency is an important policy decision, because processes with efficiency below the benchmark would have to control emissions to a greater degree than those that exceed the benchmark. This is especially true for regulation of existing sources, which have far fewer options to take advantage of efficiency. Application of output-based regulation to existing sources

Best Practices: Developing and Adopting an Output-Based Regulation

The best practices identified below will help states design effective output-based environmental regulations programs. These recommendations are based on the experiences of states that have implemented output-based environmental regulations to encourage CHP.

- Determine what types of DG and CHP technologies and applications might be affected and whether there are any specific technology issues that the regulation needs to address. Consult with the PUC, the independent system operator (ISO), and owners on operations of DG and CHP units to inform regulatory determinations.
- Gather/review available output-based emission data for regulated sources. Alternatively, convert available data to output-based format. Obtain information from equipment providers on technologies and emissions profiles, and capitalize on experience and work already conducted by other states.
- Evaluate alternative approaches to account for multiple outputs of CHP units. (See EPA's 2004 *Output-Based Regulations: A Handbook for Air Regulators* and other references in the *Information Resources* section on page 5-40).

requires special attention to the feasibility and cost of compliance options.

Other common issues include the feasibility of emission monitoring, compliance methods, and technology to measure process output (electricity and thermal output). However, all of these questions have been successfully addressed by states in their output-based rulemakings (see *State Examples* on page 5-39).

Program Implementation and Evaluation

The best practices states can use when implementing and evaluating output-based regulations are described below.

Administering Body

The state, local, or tribal environmental agency is almost always responsible for developing output-based environmental regulations.

Roles and Responsibilities of Implementing Organization

The state, local, or tribal environmental agency's responsibilities include:

- Identify and evaluate opportunities for the application of output-based environmental regulations.
- Gather information, develop goals for output-based environmental regulations, develop output-based environmental regulations, and establish appropriate output-based emission limits.
- Publicize and implement output-based environmental regulations. Train permit writers on new rules.
- Evaluate the value of output-based environmental regulations in encouraging efficiency, CHP, and emission reductions.

Evaluation

States can evaluate their overall air pollution regulatory program periodically to determine whether their regulations are structured to encourage energy efficiency, pollution prevention, and renewable resources. This evaluation helps identify new opportunities for using output-based environmental regulations to encourage energy efficiency through effective regulatory design.

Regulatory programs are routinely reviewed and revised, and occasionally new programs are mandated by state or federal legislation. For example, states are developing revised SIPs to achieve greater emission reductions to address problems of ozone, fine particulates, and regional haze. States can use this opportunity to evaluate the benefits of energy efficiency in attaining and maintaining air quality goals. States can identify the overall benefits of output-based

Best Practices: Implementing Output-Based Regulations

The best practices identified below will help states effectively implement their output-based environmental regulations programs. These recommendations are based on the experiences of states that have implemented output-based environmental regulations to encourage CHP.

- Start with internal education to ensure that state environmental regulators understand the benefits, principles, and mechanisms of output-based environmental regulations and CHP. Ensure that regulators understand why this change is good for the environment.
- Coordinate with other state agencies that can lend support. State energy offices, energy research and development offices, and economic development offices can provide valuable information on the energy benefits of output-based environmental regulations, efficiency, and CHP. Their perspective on the importance of energy efficiency and pollution prevention can help formulate policy.
- Apply output-based environmental regulations principles to new regulations, as appropriate.
- Publicize the new rules. Consider training permit writers on implementation of the new rules.

environmental regulations by assessing the affect of higher efficiency on energy savings, other emissions reduced, jobs created, and costs savings to utilities and consumers. It may be advantageous to engage state energy officials in this process to get additional perspective and insights into the energy implications of output-based environmental regulations.

State Examples

Connecticut

Connecticut has promulgated output-based environmental regulations for NO_x, particulate matter, carbon monoxide (CO), and CO_2 from small distributed generators (< 15 MW capacity), including CHP. The regulation is expressed in lb/MWh based on the Model Rule for DG developed by the Regulatory Assistance Project (RAP 2002). The regulation values the efficiency of CHP based on the emissions that are avoided by not having separate electric and thermal generation. Connecticut also allocates allowances based on energy output in their NO_x trading program.

Web site:
http://dep.state.ct.us/air2/regs/mainregs/sec42.pdf

Indiana

Indiana has created a set-aside of allowance allocations for energy efficiency and renewable energy in their NO_x trading program. Indiana allocates 1,103 tons of NO_x allowances each year for projects that reduce the consumption of electricity, reduce the consumption of energy other than electricity, or generate electricity using renewable energy. Highly efficient electricity generation projects for the predominant use of a single end user or highly efficient generation projects that replace or displace existing generation equipment are eligible to apply for NO_x allowances. Projects can involve combined cycle systems, CHP, microturbines, or fuel cells.

Web site:
http://www.in.gov/idem/air/standard/Sip/guide.pdf

Massachusetts

Massachusetts has used output-based environmental regulations in several important regulations. The Massachusetts NO_x cap and trade program employs useful output, including the thermal output of CHP, to allocate emission allowances to affected sources (generators > 25 MW). This approach provides a significant economic incentive for CHP within the emissions cap. Massachusetts also has a multi-pollutant emission regulation (NO_x, SO_2, mercury [Hg], CO_2) for existing power plants, which uses an output-based format for conventional emission limits.

Web site:
http://www.mass.gov/dep/bwp/daqc/files/728reg.pdf

Texas

In 2001, Texas promulgated a standard permit with output-based emission limits for small electric generators. The permit sets different NO_x limits (lb/MWh) based on facility size, location, and level of utilization. The compliance calculation accounts for the thermal output of CHP units by converting the measured steam output (British thermal unit, or Btu) to an equivalent electrical output (MWh). To qualify as a CHP unit, the heat recovered must represent a minimum of 20% of total energy output by the unit.

Web site:
http://www.tnrcc.state.tx.us/permitting/airperm/nsrpermits/files/segu_permitonly.pdf

What States Can Do

Output-based regulations with provisions to recognize the pollution prevention benefits of CHP are becoming more common in the development and implementation of environmental regulations. Where appropriate, states can investigate incorporating output-based environmental regulations into new regulations or amendments. The most important step is to integrate an evaluation of output-based environmental regulations into the routine review and implementation of environmental regulations. In this way, a state can promote energy efficiency through the structure of its air pollution regulatory program.

Information Resources

Federal Resources

Title/Description	URL Address
Developing and Updating Output-based NO_x Allowance Allocations. This EPA guidance document was the result of a 1999 stakeholder process to develop approaches to output-based allocation of emission trading allowances, including allocation to CHP facilities.	http://www.epa.gov/airmarkets/fednox/april00/finaloutputguidanc.pdf
The EPA CHP Partnership. This voluntary program seeks to reduce the environmental impact of energy generation by promoting the use of CHP. The Partnership helps states identify opportunities for policy developments (i.e., energy, environmental, and economic) to encourage energy efficiency through CHP. In 2006, the Partnership, in conjunction with the Northeast States for Coordinated Air Use Management (NESCAUM), is developing output-based environmental regulations training for state air regulators.	http://www.epa.gov/chp
Output-Based Regulations: A Handbook for Air Regulators. The EPA CHP Partnership has developed a handbook that explains the benefits of output-based emission limits, how to develop output-based environmental regulations, and the experience of several states in implementing output-based environmental regulations. This handbook is intended as a resource for air regulators in evaluating opportunities to adopt output-based environmental regulations and in writing regulations.	http://www.epa.gov/chp/pdf/output_rpt.pdf

Other Resources

Title/Description	URL Address
The Impact of Air Quality Regulations on Distributed Generation. National Renewable Energy Laboratory (NREL), Golden, CO. October. This report finds that current air quality regulatory practices are inhibiting the development of DG, either through a failure to recognize the environmental benefits offered by DG or by imposing requirements designed for larger systems that are not appropriate for DG systems.	http://www.nrel.gov/docs/fy03osti/31772.pdf
NESCAUM. This is an interstate association of air quality control divisions in the Northeast. The eight member states are comprised of the six New England States and New York and New Jersey. NESCAUM's purpose is to exchange technical information and promote cooperation and coordination of technical and policy issues regarding air quality control among the member states.	http://www.nescaum.org/
Regulatory Requirements Database for Small Electric Generators. This online database provides information on state environmental regulations for small generators and other types of regulations for small generators.	http://www.eea-inc.com/rrdb/DGRegProject/index.html

General Articles on Output-Based Regulation

Title/Description	URL Address
Analysis of Output-Based Allocation of Emission Trading Allowances. This report for the U.S. Combined Heat and Power Association (USCHPA) provides background on emission trading programs and the benefits of output-based allocation, with a particular focus on CHP.	http://uschpa.admgt.com/AllocationFinal.pdf

Examples of Legislation and Program Proposals

Following are examples of output-based approaches to different types of environmental regulation:

Example	Title/Description	URL Address
Allowance Allocation	Massachusetts uses useful output, including thermal energy from CHP, to allocate emission allowances in its NO_x trading program.	http://www.mass.gov/dep/bwp/daqc/files/728reg.pdf
	EPA has also included elements of output-based emission allocation approaches in its model trading rules for the Clean Air Interstate Rule (CAIR) and Clean Air Mercury Rule.	http://www.epa.gov/cair/pdfs/cair_final_reg.pdf http://www.epa.gov/mercuryrule/pdfs/camrfinal_regtext.pdf
	EPA has suggested model language for energy efficiency/renewable energy set-asides in NO_x emission trading programs.	http://www.epa.gov/ttn/oarpg/t1/memoranda/ereseerem_gd.pdf
Conventional Rate Limits	The OTC has developed output-based "beyond RACT" regulatory language for a variety of sources.	http://www.otcair.org/interest.asp?Fview=stationary#
	The federal NSPS for NO_x from electric utility boilers and the proposed NSPS for combustion turbines are structured as output-based environmental regulations. Each rule also contains compliance provisions for CHP. These regulations provide excellent examples of rule language and technical background documentation.	http://www.epa.gov/ttn/oarpg/t3pfpr.html
DG Regulations	Texas has an output-based standard permit for small electric generators with recognition of CHP.	http://www.tnrcc.state.tx.us/permitting/airperm/nsr_permits/files/segu_permitonly.pdf
	The RAP, with support from the U.S. Department of Energy (DOE), developed model rule language for regulation of small electric generators, including CHP.	http://www.raponline.org/ProjDocs/DREmsRul/Collfile/ModelEmissionsRule.pdf
	Connecticut has promulgated a rule using the RAP model rule approach.	http://dep.state.ct.us/air2/regs/mainregs/sec42.pdf

References

Title/Description	URL Address
EPA. 2004. Output-Based Regulations: A Handbook for Air Regulators. Produced in a joint effort between Energy Supply and Industry Branch, Green Power Partnership and CHP Partnership. August 2004.	http://www.epa.gov/chp/pdf/output_rpt.pdf
RAP. 2002. Model Regulations for the Output of Specified Air Emissions from Smaller-scale Electric Generation Resources Model Rule and Supporting Documentation. RAP. October 15.	http://www.raponline.org/ProjDocs/DREmsRul/Collfile/ModelEmissionsRule.pdf